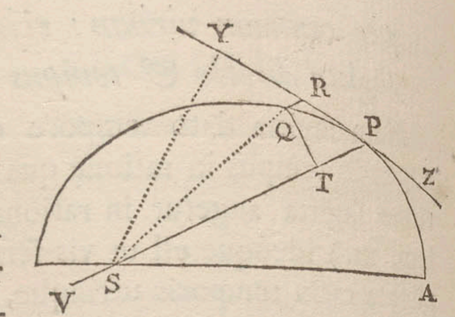
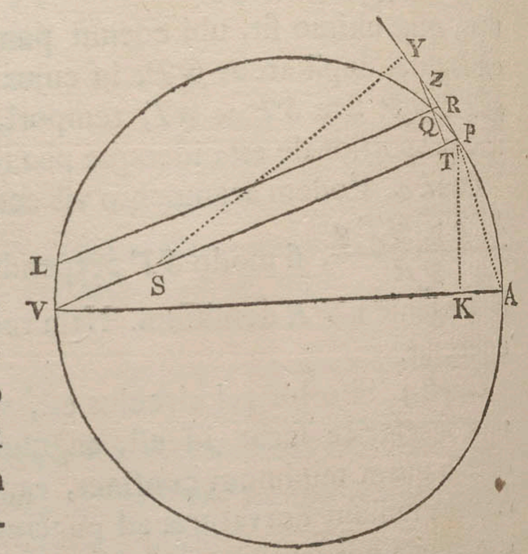


Corol. 4. Iiſdem poſitis, eſt vis centripeta ut velocitas bis directe, & chorda illa inverſe. Nam velocitas eſt reciproce ut perpendiculum SY per corol. 1. prop. 1.

Corol. 5. Hinc ſi detur figura quævis curvilinea APQ, & in ea detur etiam punctum S, ad quod vis centripeta perpetuo dirigitur, inveniri poteſt lex vis centripetæ, qua corpus quodvis P a curſu rectilineo perpetuo retractum in figuræ illius perimetro detinebitur, eamque revolvendo deſcribet. Nimirum computandum eſt vel ſolidum $\frac{SPq \times QTq}{QR}$ vel ſolidum $SYq \times PV$ huic vi reciproce proportionale. Ejus rei dabimus exempla in problematis ſequentibus.

PROPOSITIO VII. PROBLEMA II.

Gyretur corpus in circumferentia circuli, requiritur lex vis centripetæ tendentis ad punctum quodcunque datum.



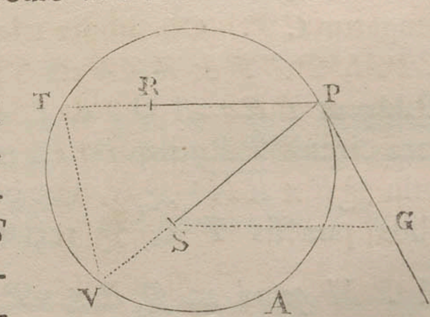
Eſto circuli circumferentia $VQPA$; punctum datum, ad quod vis ceu ad centrum ſuum tendit, S; corpus in circumferentia latum P; locus proximus, in quem movebitur Q; & circuli tangens ad locum priorem PRZ. Per punctum S ducatur chorda PV; & acta circuli diametro VA, jungatur AP; & ad SP demittatur perpendiculum QT, quod productum occurrat tangenti PR in Z; ac denique per punctum Q agatur LR, quæ ipſi SP parallella ſit, & occurrat tum circulo in L, tum tangenti PZ in R. Et ob ſimilia triangula ZQR, ZTP, VPA; erit RP *quad.* hoc eſt QRL ad QT *quad.*

QT *quad.* ut AV *quad.* ad PV *quad.* Ideoque $\frac{QRL \times PV \text{ quad.}}{AV \text{ quad.}}$ æquatur QT *quad.* Ducantur hæc æqualia in $\frac{SP \text{ quad.}}{QR}$, & punctis P & Q coeuntibus ſcribatur PV pro RL. Sic fiet $\frac{SP \text{ quad.} \times PV \text{ cub.}}{AV \text{ quad.}}$ æquale $\frac{SP \text{ quad.} \times QT \text{ quad.}}{QR}$. Ergo (per corol. 1. & 5. prop. VI.) vis centripeta eſt reciproce ut $\frac{SPq \times PV \text{ cub.}}{AV \text{ quad.}}$; id eſt (ob datum AV *quad.*) reciproce ut quadratum diſtantiæ ſeu altitudinis SP & cubus chordæ PV conjunctim. *Q. E. I.*

Idem aliter.

Ad tangentem PR productam demittatur perpendiculum SY: & ob ſimilia triangula SYP, VPA; erit AV ad PV ut SP ad SY: ideoque $\frac{SP \times PV}{AV}$ æquale SY, & $\frac{SP \text{ quad.} \times PV \text{ cub.}}{AV \text{ quad.}}$ æquale SY *quad.* $\times PV$. Et propterea (per. corol. 3. & 5. prop. VI.) vis centripeta eſt reciproce ut $\frac{SPq \times PV \text{ cub.}}{AVq}$, hoc eſt, ob datam AV reciproce ut $SPq \times PV$ *cub.* *Q. E. I.*

Corol. 1. Hinc ſi punctum datum S, ad quod vis centripeta ſemper tendit, locetur in circumferentia hujus circuli, puta ad V; erit vis centripeta reciproce ut quadrato-cubus altitudinis SP.



Corol. 2. Vis, qua corpus P in circulo $APTV$ circum virium centrum S revolvitur, eſt ad vim, qua corpus idem P in eodem circulo & eodem tempore periodico circum aliud quodvis virium centrum R revolvi poteſt, ut RP *quad.* $\times SP$ ad cubum rectæ SG, quæ a primo virium centro S ad orbis tangentem PG ducitur, & diſtantiæ corporis à ſecundo virium centro parallela eſt. Nam per conſtructionem hujus propoſitionis vis prior eſt ad vim poſteriorem ut $RPq \times PT$ *cub.* ad $SPq \times PV$ *cub.*